

Application No. 09/362,631

Claim 20 was amended to make the claim more clear. The claim has not been narrowed since the appended clause restates features already present in the claim before its amendment. This restatement of the claim does not introduce new matter into the claims.

I. Rejections of Claims 20-22, 54, 55, 63, and 64 as being anticipated under 35 U.S.C. 102(b) in light of JP-61-67836 ('836 application)

The rejections of claims 20-22, 54, 55, 63, and 64 as being anticipated under 35 U.S.C. 102(b) in light of JP-61-67836 ('836 application) are respectfully traversed. An anticipatory reference must provide each element of the claimed invention. The '836 application, however, does not provide a particle collection apparatus that receives particles generated from a plurality of reactant streams. The claimed configuration entails a structure wherein the particles generated from the reactants from the plurality of independent reactant streams are collected by the particle collection apparatus. The '836 application provides one collection apparatus (filter) per reactant stream, as exemplified by Figure 5 therein. Since the '836 application does not provide a particle collection apparatus that receives particles generated from a plurality of reactant streams, there can be no *prima facie* anticipation. Therefore the Examiner is requested to withdraw these rejections of the referenced claims as being anticipated under 35 U.S.C. 102(b) in light of the '836 application.

II. Rejections of claims 23, 25-27, 52, 53, 58, and 59 for obviousness in light of JP 61-67836

Claims 23, 25-27, 52, 53, 58, and 59 have been rejected under 35 U.S.C. 103(a) in light of the '836 application. The Examiner has suggested that the '836 application lacks the provision of the plurality of reaction chambers, but that one of ordinary skill in the art at the time of the invention could have provided a plurality of reaction chambers because motivation to make elements separable is obvious under case law. Office Action, at page 3, lines 1-7 (Examiner is

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presumed to have intended to state "reaction chambers" instead of only "reaction"). However, as discussed below, the '836 application does not render the claims *prima facie* obvious.

It is not clear how the elements that are to be separated in the '836 application would result in the presently claimed invention. The '836 application describes one reaction chamber with reaction streams that are separated therein. The Examiner may not properly separate the elements of the '836 and recombine them to supply the elements of the presently claimed invention that are missing in the '836 without some teaching or suggestion in the art. The Examiner has pointed to In re Dulberg, 129 USPO 348 (C. C. P. A., 1961), wherein an Applicant argued that a prior art "press fit" cap for a container was not manually removable because "in a press fit the parts fit so tightly that they cannot be manually removed". Id., at 349. The court held that the motivation for making a cap "manually removable depends on whether it is desired to gain ready access to the space covered by the cap". Id., at 349. In that case, since a user needs to access lipstick, there was a motivation to make the cap manually removable, and it was held to be obvious that making the cap for the lipstick into a manually removable cap was obvious. Id., at 349. With regard to the present application claims, however, there is presently no issue related to a removable element. Indeed, a case relating to the removability of an element does not provide a legal basis for arguing that the elements of the '836 application apparatus may be separated from each other to make a new apparatus. In re Dulberg is even more remote from the proposition that elements, once separated, may be recombined in any useful configuration to provide the elements that the application lacks as a prior art reference. Therefore the Examiner may not properly look to In re Dulberg to provide a teaching to separate the elements of the '836, create new elements, and recombine the elements to make the presently claimed invention.

Moreover, the '836 application does not provide a motivation for the proposed separation or for recombining the elements to make multiple reaction chambers. Indeed, the '836 application design teaches away from the use of multiple reaction chambers since the purpose of the '836

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application was to manufacture different powders with different particle sizes and compositions in one apparatus ('836 application, page 3 of translation, lines 5-10). To achieve that purpose, the '836 application provides a single reaction chamber that allows multiple reactions of different types and particle sizes to take place therein (see, e.g., Figure 1) for separate collection. It would not have been obvious to use the '836 application to create an apparatus with multiple chambers because the '836 application teaches away from making an apparatus with multiple chambers and because the '836 application does not teach how to put together multiple chambers into an integrated system as presently claimed.

The Office Action fails to establish prima facie obviousness of the claimed invention in light of the '836 application because separation of the '836 application's elements fails to teach all of the elements and because it provides no motivation for the separation of the elements. For all of these reasons, the Examiner is requested to withdraw the rejections of claims 23, 25-27, 52, 53, 58, and 59 for obviousness in light of JP 61-67836.

III. Rejection of claims 24, 56, 57, and 60-62 for obviousness in light of JP 61-67836 and Beaty et al.

The Examiner has suggested that Beaty may be combined with the '836 application to provide the element of a manifold. Applicants submit that there is no motivation to combine the references as suggested because a) the references teach away from the combination, b) Beaty is non-analogous art and c) the combination destroys the stated functionality of the apparatus in the '836 application.

The '836 application, however, teaches away from the combination. Indeed, the purpose of the '836 application apparatus was to manufacture different powders with different particle sizes and compositions in one apparatus ('836 application, page 3 of translation, lines 5-10). A combination of the '836 application apparatus with a manifold such as found in Beaty, however, would mix the different powders so that the manufacture and recovery of different powders from

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the apparatus would not be possible. Thus, there is no motivation in the prior art references provided to combine the '836 application apparatus with the manifold of Beaty. Therefore the combined prior art references do not render the claims *prima facie* obvious and the Examiner is requested to withdraw rejections of claims 24, 56, 57, and 60-62 for obviousness in light of JP 61-67836 and Beaty et al.

Furthermore, the '836 application states that the purpose of the apparatus design is to produce and separately collect powders generated by separate reactions. The combination stated by the Examiner would destroy this stated purpose of the apparatus in the '836 application. This destruction of the stated purpose means that the combination is not obvious.

Moreover, the Beaty patent describes an apparatus that generates the particles within a reaction chamber from a solid, stationary source. Specifically, the particles are generated from ablation of an electrode by a discharge. See, for example, column 2, lines 59-62. The particles are quenched by a carrier gas. See, for example, column 3, lines 1-5. Fig. 3 and the description implies that the particles fragmented from the electrode fill that chamber behind the electrodes. The apparatus in the Beaty patent does not describe a reactant flow for particle formation since the particles are fragmented from a fixed electrode. In contrast, the JP application is directed to a laser pyrolysis apparatus with flowing reactants. The JP application teaches that a plurality of independent reactant streams that can be used to produce multiple reactants within a single reaction chamber. The stated purpose of using multiple reactant streams is to use the laser radiation more efficiently. See page 4, second full paragraph of the translation. These applications are thus directed to nonanalogous art and therefore there is no motivation to combine them.

The Examiner has pointed to In re Newell, 13 USPQ 2d 1248 (C.A.F.C., 1989) to suggest that a person of ordinary skill in the art would have been motivated to make the combination of Beaty and the '836 application because the motivation to make a specific structure is always

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related to the properties or uses that one skilled in the art would expect the structure to have. (Office Action, page 4, lines 7-13); See In re Newell, at 1250. However, Newell was a patent applicant that successfully argued that there was no motivation to combine the prior art to make his invention. Recognition of the relatedness of structure and function does not supply the motivation without some suggestion to perform the modification.

Indeed, the Newell court pointed out that "The critical inquiry is whether 'there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination' ". Id (emphasis in original). As discussed above, there is no suggestion in the cited prior art that suggests the desirability, and hence the obviousness of making the combination. In fact, in the present case, the Office Action has failed to establish prima facie obviousness since there is not motivation to combine the references since Beaty is nonanalogous art, the '836 application teaches away and the combination destroys the stated function of the apparatus in the '836 application.

For these reasons, the prior art does not render the cited claims *prima facie* obvious and the Applicants respectfully request withdrawal of the rejection of claims 24, 56, 57, and 60-62 under 35 U.S.C. §103(a) as being unpatentable over the '836 application in view of U.S. Patent 5,194,128 to Beaty et al. (the Beaty patent).

CONCLUSIONS

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

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The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



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July 2, 2002
Date


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ATTACHMENT
REDLINED AMENDMENTClaims As Amended

Please substitute the following amended claims for those currently pending:

20. (Twice Amended) A particle production system comprising:

a plurality of reactant inlets configured to direct a plurality of independent reactant streams toward one or more product outlets; and

a particle collection apparatus connected to the one or more product outlets to collect the product particles generated by the reactants from the plurality of reactant inlets, wherein the particle collection apparatus receives product particles generated from the plurality of reactant streams.